Healthcare providers are increasingly constrained in the time they have to assess, diagnose, and treat patients during face-to-face office visits. When well designed and effectively used, the Electronic Health Record (EHR) has the potential to improve effectiveness, safety, efficiency of care. However, if EHRs are implemented without knowledge of real-world usability (effectiveness, efficiency, and satisfaction) they can interfere with existing clinical workflow and introduce inefficiencies.

The primary aim of this presentation is to share research data that highlight the need to better understand EHR usability, specifically efficiency and effectiveness. Our work is distinguished from previous time-and-motion studies by our ability to capture, synchronize, and analyze multiple concurrent channels of temporal data, including physician’s clinical work, communication, cognitive load, and interactions with the EHR. In this presentation, we will describe how clinicians’ EHR use patterns relate to usability and how these patterns suggest multiple inefficiencies and decreased patient-provider interaction. The study results focus on measuring efficiency (eg, time-at-task, navigation patterns, order entry) and effectiveness (eg, patient-provider interaction). We will also highlight our approach (and limitations) to usability analysis in clinical settings that leverages multi-modal data capture, integration, and novel analytic approach.